



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/566,864

01/31/2006

Masanori Kusunoki

2271/75819

2176

23432 7590 06/17/2008
COOPER & DUNHAM, LLP
1185 AVENUE OF THE AMERICAS
NEW YORK, NY 10036

EXAMINER

HSIEH, SHIH WEN

ART UNIT

PAPER NUMBER

2861

MAIL DATE

DELIVERY MODE

06/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/566,864	Applicant(s) KUSUNOKI ET AL.	
	Examiner shih-wen hsieh	Art Unit 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 28, 2008 has been entered.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Terminal Disclaimer

3. The terminal disclaimer filed on Oct. 9, 2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of

co-pending application 10/555,456 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Specification

4. The disclosure is objected to because of the following informalities:

Page 31, line 20 should "corner parts 192a-192d" be "corner parts 193a-193d"?

Please also refer to fig. 10.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

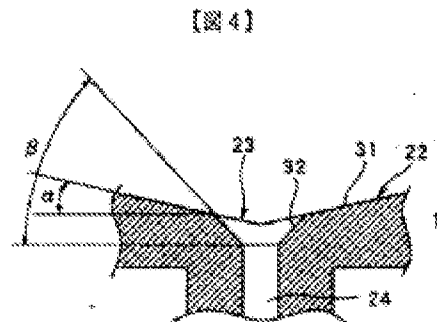
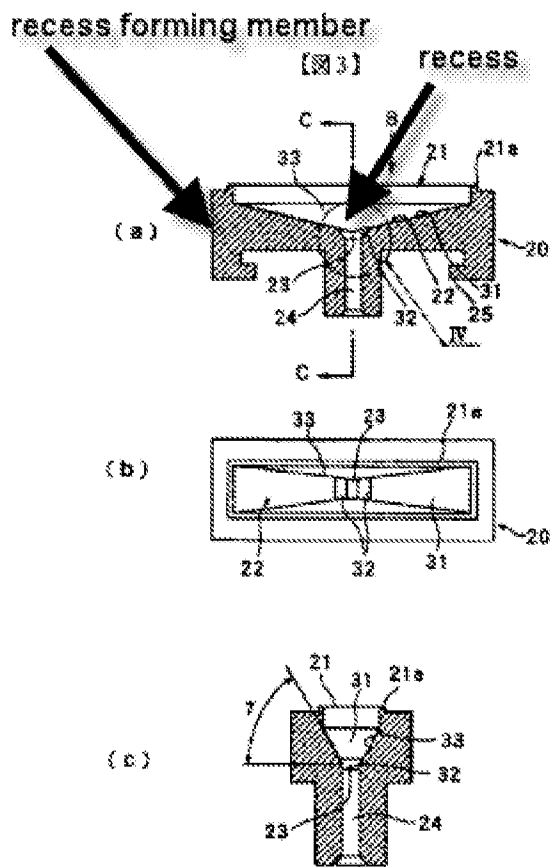
not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-3, 6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeru et al. (JP 07-040538, from IDS dated Jan. 31, 2006) in view of Yujiro et al. (JP 06-238915, from IDS dated Jan. 31, 2006).

In regard to:

Claim 1:

Shigeru et al. teach in the figs. below:



A maintenance/recovery device for a liquid discharge device, comprising:

a cap member (20, fig. 3, see [0009]) covering a surface of a nozzle of a liquid discharging head (2, fig. 1), the liquid discharging head discharging a droplet of a recording liquid from the nozzle;

a resilient contact member (21a, fig. 3, see [0009]) provided in the cap member to come in contact with the surface of the nozzle;

a recess-forming member (see fig. above) provided in the cap member to form a recess (see fig. Above) for receiving the recording liquid attracted from the nozzle,

wherein the contact member and the recess-forming member are integrally formed by molding, the recess-forming member is made of a water-repellant resin material containing a water repellent agent, and the recess-forming member comprises a plurality of slopes (31, 32 and 33, fig. 3) providing respective inclined surfaces toward an outlet (23) at a bottom of the recess from an entire circumference of an opening part of the cap member, each of the inclined surfaces forming an inclination angle equal to or larger than 20 degrees with respect to a horizontal plane (see [0009], the slope of inclined surface 31 in this working sample is 13° , however, it can be 30° , see [0006].

The device of Shigeru et al. **DIFFERS** from claim 1 in that it does not teach the underlined portion above, i.e.:

the recess-forming member is made of a water-repellant resin material containing a water repellent agent.

To this issue, Yujiro et al. teach a cap member (1) having slope surfaces, and the sloped surfaces are coated with liquid repellent material (2)(see English Constitution).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to include the liquid repellent coating to the sloped surfaces of Shigeru et al.'s cap member as taught by Yujiro et al. for the purpose of facilitating the ink inside the cap member to be flow down to the exhaust port disposed at the bottom of the cap member without buildup on the sloped surfaces of the cap member.

Claim 2:

The device of Hara et al. DIFFERS from claim 2 in that it does not teach:
wherein a content of the water repellent agent in the resin material which forms the recess-forming member does not exceed 10 weight percent.

Rejection:

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a certain amount of water repellent agent in the resin material, since it has been held that discovering an optimum value of a result effective variable, such as 10% in weight as proposed by the present application, involves only routine skill in the art, refer to MPEP 2144.05 II B.

Claim 3:

Shiguru et al. further teach:
wherein the recess of the recess-forming member is provided with corners which are curved (see [0006] last four lines).

Claim 6:

An image forming device comprising:

a liquid discharge head provided as a recording head which discharges a droplet of a recording liquid from a nozzle; and

a maintenance/recovery device provided to maintain and recover performance of the liquid discharge head, the maintenance/recovery device comprising:

a cap member covering a surface of the nozzle of the liquid discharging head;

a resilient contact member provided in the cap member to come in contact with the surface of the nozzle;

a recess-forming member provided in the cap member to form a recess for receiving the recording liquid attracted from the nozzle,

wherein the contact member and the recess-forming member are integrally formed by molding, the recess-forming member is made of a water-repellant resin material containing a water repellent agent, and the recess-forming member comprises a plurality of slopes being providing respective inclined surfaces toward an outlet at a bottom of the recess from an entire circumference of an opening part of the cap member, each of the inclined surfaces forming an inclination angle equal to or larger than 20 degrees with respect to a horizontal plane.

Rejection:

This claim is rejected on the basis as set forth for claim 1 discussed above.

Claim 8:

The image forming device according to claim 6 wherein a content of the water repellent agent in the resin material which forms the recess-forming member does not exceed 10 weight percent.

Art Unit: 2861

Rejection:

This claim is rejected on the basis as set forth for claim 2 discussed above.

Claim 9:

The image forming device according to claim 6 wherein the recess of the recess-forming member is provided with comers which are curved.

Rejection:

This claim is rejected on the basis as set forth for claim 3 discussed above.

7. Claims 4, 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeru et al. in view of Yujiro et al. as applied to claim 1 above, and further in view of Lerat et al. (US Pat. No. 6,435,665).

In regard to:

Claim 4:

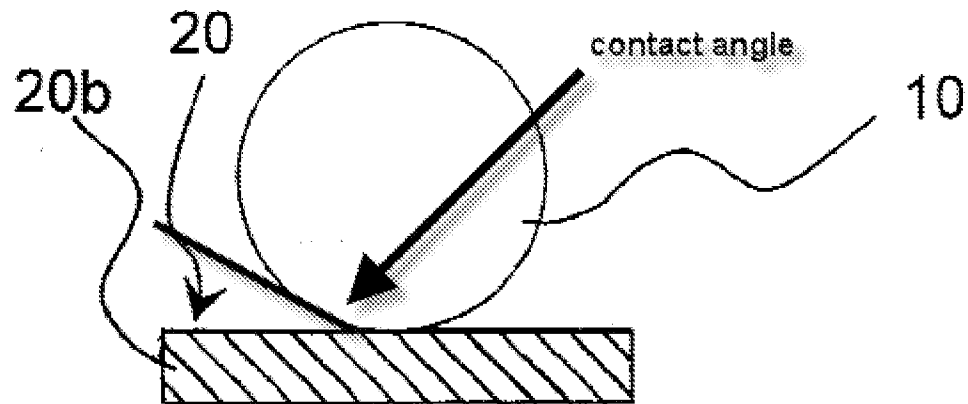


FIG. 1B

The device of Shigeru et al. as modified in view of Yujiro et al. DIFFERS from claim 4 in that it does not teach:

wherein a sum of the inclination angle of the slopes of the recess-forming member with respect to the horizontal plane and a contact angle between the slopes and the recording liquid is 70 degrees or more.

To this issue, Lerat et al. teach a polymer element (20, fig. 1B above) in a hydrophobic state (20b). A hydrophobic state corresponds to a liquid repellent situation, and a liquid droplet (10) can form a high contact angle as shown in the fig. above (see col. 3, lines 42-63). In the condition as shown in fig. 1B above, the contact angle is greater than 90° .

Therefore, it would have been an obvious matter that wherein a sum of the inclination angle of the slopes (e.g. 30^0 , see discussions to claim 1 above) of the recess-forming member with respect to the horizontal plane and a contact angle (see fig. 1B below) between the slopes and the recording liquid is 70 degrees or more.

Claim 5:

The maintenance/recovery device according to claim 4 wherein the sum of the inclination angle and the contact angle is 90 degrees or more.

Rejection:

This claim is rejected on the basis as set forth for claim 4 discussed above.

Claim 10:

The image forming device according to claim 6 wherein a sum of the inclination angle of the slopes of the recess-forming member with respect to the horizontal plane and a contact angle between the slopes and the recording liquid is 70 degrees or more.

Rejection:

This claim is rejected on the basis as set forth for claim 4 discussed above.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeru et al. in view of Yujiro et al. as applied to claim 1 above, and further in view of Arita et al. (US Pat. No. 6,695,443).

The device of Shigeru et al. as modified in view of Yujiro et al. **DIFFERS** from claim 7 in that it does not teach:

wherein the recording liquid contains water, pigment, a polymer component and a water-soluble organic solvent, and wherein an amount of pigment is equal to or more than 6 weight percent of the recording liquid, and a viscosity of the recording liquid is equal to or higher than 5 cps and equal to or lower than 20 cps and a surface tension of the recording liquid is 40 dyne/cm at a temperature of 25°C.

To this issue, Arita et al. teach an ink for an ink jet printer, and the composition of the ink is as shown in the Abstract.

Therefore, it would have been an obvious matter to use a specific composition of the ink such as taught by Arita et al. for the intended use, such as to realize an image quality of laser printer on a plain paper in a one pass printing mood under conditions of a volume of an ink droplet ejected being 5-43 pico liter, a velocity of the ink droplet being 6 to 20 m/sec, frequency of 1kHz and resolution of 300 dpi or more.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to shih-wen hsieh whose telephone number is 571-272-2256. The examiner can normally be reached on 9/5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on 571-272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2861

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/shih-wen hsieh/

Primary Examiner, Art Unit 2861

June 13, 2008